

A BRIEF REPLY.

In his note to which Dr. Richter refers, the writer was restricted by the editor to only a few lines. It was, of course, impracticable to enter into a discussion and only a few words need be said now.

1st. I am glad to see that Dr. Richter accepts the bacterial nature of colds in general.

2d. I do not find in his quotation from Anders any statement that a common cold "depends for its development primarily on an excess of moisture in the air we breathe;" and I have nowhere seen concrete evidence that common colds are associated with "cyclonic weather."

3d. It is admitted that some persons are subject to harm from drafts; some persons have hay fever and rose colds; some persons have acute rhinitis because of occupational association with chemicals; and so on. But where do most people get their colds? The most recent and perhaps best authority that I have seen is the *Hand Book of Therapy*, 6th edition, October, 1920, published by the American Medical Association. On page 224 it says:

"Acute colds are always due to germs of some kind. A too dry atmosphere, which is the condition in so many houses to-day, may so irritate or congest the nostrils as to allow the least irritant to cause at first a simple inflammation of the mucous membrane, which congested area may later pick up and harbor, or cease to kill, germs. Outdoor air does not predispose to colds as much as indoor air, and persons whose occupation is indoors are more liable to have colds than those whose occupation is outdoors. * * * It is quite probable that chilling of the surface of the body congests the inner organs and possibly the mucous membrane of the air passages. If the mucous membrane of the nose is congested, it more readily becomes inflamed. * * * Some persons can not be exposed to a single draft on any part of the body without an acute coryza starting. * * * Other persons who do not have this susceptibility may become chilled, may be subjected to violent, cold, damp winds, and may even get wet and still never develop a nasal inflammation."

For recent experimental work see *Jour. A. M. A.*; 75: 1500 E and note on another page of this magazine.—*John R. Weeks.*

NOTE ON SOME EFFECTS OF WEATHER CHANGES ON DISEASE.

The conditions of the vasomotor nerves of the skin and of the blood supply to the capillaries of the skin have much to do with the amount of blood that reaches other organs and surfaces of the body and thus with disease "feelings" and bacterial activity. Experiments on animals have recently demonstrated (1) that chilling of the body surface causes an anaemia of the mucous membranes of the nose and throat instead of a hyperemia as formerly supposed (2). Further, there is recent evidence (3) that "nerve impulses along vasomotor fibers may play upon the caliber not only of the arterioles but also of the capillaries and venules." Again, for example (4), if the splanchnic nerves on the two sides are cut the intestinal region becomes congested and the effect in this case is so great that the general arterial pressure falls to a very low point.

The cause of "weather pains" in persons with arthritis, "rheumatism," fractures, amputated limbs, etc., has been a mystery. Dr. Pemberton, of the Presbyterian Hospital, Philadelphia, has thrown new light on the subject by the study of 400 cases of chronic arthritis under treatment in the Army (5). Arthritis is usually due to focal infection and is popularly called "rheumatism." Dr. Pemberton states that the blood supply of the joints, per se, in health as well as disease, is definitely poor and quotes the researches of Nichols and Richardson (6) also to that effect. It follows that further diminution of the

blood supply to these parts by the action of weather conditions will cause an increase of rheumatic sensations and of bacterial activity in localities that are depleted, such as joints, fractures, amputations, and the mucous membranes of nose and throat. Respiratory functions of the blood are also a factor (oxygen content, etc.), and Dr. Pemberton says:

It has long been known that chronic sufferers from this disease (arthritis) undergo exacerbations that seem to be sharply related to disturbances of the weather. This is so definitely true that certain types of climate are recognizedly detrimental and others equally advantageous in their influence on this disease. If disturbance in the respiratory functions of the blood is a factor in the disease, it is almost axiomatic that wide fluctuations of the barometer and humidity would affect these cases, since the percentage saturation of hemoglobin by oxygen is a function of the partial pressure of oxygen in the alveolar air.

Following another line of investigation, E. G. Martin, of Stanford University (7), has found that the most obvious of the external factors that influence the daily work of factory employees are climatic, confirming in this respect the previous work of Ellsworth Huntington, of Yale University. It appears (to quote the review in the *Journal of the American Medical Association*) that certain days are more favorable to high output than others, and the influences that underlie the differences are such as to affect all workers in a single environment. Martin's data, as well as Huntington's and the studies of the New York Ventilation Commission, suggest that the temperature at which work is carried on is important. He shows that there is evidence that persistent exposure to temperature above 30 C. (86° F.) is unfavorable to strength. Relative humidities between 70 and 80 per cent appear to favor high strength showing.—*John R. Weeks.*

References.

- (1) *Jour. A. M. A.*; 75, p. 1500 E.
- (2) *Mo. WEA. REVIEW*, 48, 9; pp. 507, 508.
- (3) *Jour. A. M. A.*; 75, 26 (Dec. 25, 1920), p. 1784.
- (4) *Howell*, *Physiology*, 7th ed., 1918, p. 613.
- (5) *Jour. A. M. A.*; 75, 26 (Dec. 25, 1920), pp. 1761-1765.
- (6) Nichols, E. H., and Richardson, F. L., *Jour. A. M. A.*, 21, 149, September, 1909.
- (7) Martin, E. G., *Strength Tests in Industry*, Pub. Health Rep., 35, 1895 (Aug. 13, 1920).

WEATHER AND DISEASE.

The article by Dr. Leonard Hill on "Atmospheric Environment and Health" that appeared in the *MONTHLY WEATHER REVIEW* for December, 1920, is, in the main, of high standard, but I think that exception can be taken to the first sentence. It is an old thought that things wild are free from contagious disease and disease epidemics, just as it is an old thought that night air, and even air in general, is a carrier of contagion. The American Indian and the Esquimaux were subject to consumption before the arrival of civilization as well as now. Wild animals and wild plants now have contagious diseases and doubtless always did have them. Bacteria of types now common are found in the oldest manuscripts, thousands of years old, embedded in the papyrus and clay, and in rocks of prehistoric times. Doubtless the cave dwellers of the glacial period were afflicted and the plants and animals. Bacteria are found deeply imbedded in the ice of newly exposed arctic regions.

Dr. Erwin Smith, director of the Laboratory of Plant Pathology, United States Department of Agriculture, believes that all plant families will ultimately be found to have characteristic bacterial diseases, though we now know only some of those that are most common.